

WHAT IS CLAIMED IS:

1 1. A system for delivering content to a subscriber terminal on-demand
2 through a communication network, the system comprising:
3 a content preparation module for preencrypting the content offline to form pre-
4 encrypted content;
5 an on-demand module receiving the pre-encrypted content from the content
6 preparation module, for storing, and transmitting the pre-encrypted content to the subscriber
7 terminal when authorized;
8 an encryption renewal system interfacing with the on-demand module to
9 generate entitlement control messages allowing the pre-encrypted content to be decryptable
10 for a designated duration; and
11 a conditional access system for providing a periodical key to the encryption
12 renewal system, to permit generation of the entitlement control messages that convey
13 information required to decrypt the pre-encrypted content including the periodical key to the
14 subscriber terminal.

1 2. The system of claim 1 wherein the communication network is a cable
2 network for distributing audio/video content from a cable central office to all or a subset of
3 subscriber terminals.

1 3. A method of delivering content from one or more cable systems to
2 subscriber terminals within the cable systems, the cable systems being communicatively
3 coupled to an offline encryption device, the method comprising:
4 receiving by a first cable system, a request for the content from a first
5 subscriber terminal of the first cable system;
6 preencrypting, by the offline encryption device, the content to form pre-
7 encrypted content prior to the step of receiving a request;
8 generating an encryption record containing parameters employed for
9 encrypting the content;
10 based on the encryption record and a first key information, generating one or
11 more control messages for permitting access to the pre-encrypted content; and
12 transmitting the pre-encrypted content associated with the one or more control
13 messages to the first subscriber terminal for decryption of the pre-encrypted content.

1 4. The method of claim 3 further comprising
2 receiving, by a second cable system, a request from a second subscriber
3 terminal of the second cable system, and
4 based on the encryption record and a second key information, generating one
5 or more control messages for permitting the second subscriber terminal to access the pre-
6 encrypted content.

1 5. The method of claim 3 wherein the first key information is provided by
2 a conditional access system that uses the key information to control the first subscriber
3 terminal.

1 6. The method of claim 5 wherein the key information is for a key that is
2 periodical and valid for a designated duration.

1 7. The method of claim 6 wherein the designated duration is shortly
2 before, contemporaneous with, or shortly after the first key is changed by the conditional
3 access system.

1 8. The method of claim 3 wherein the one or more control messages is a
2 first entitlement control message for conveying information to the first subscriber terminal to
3 compute a key.

1 9. The method of claim 3 further comprising
2 changing the first key information after a designated duration, and reporting
3 the key change by the first cable system.

1 10. The method of claim 3 further comprising
2 retrofitting a second entitlement control message to the pre-encrypted content
3 for permitting access to the pre-encrypted content after the first key information expires.

1 11. The method of claim 10 wherein the retrofitting of the second control
2 message employs a second key information.

1 12. The method of claim 11 wherein the step of retrofitting the second
2 entitlement control message is synchronized with changing of a first key information to the
3 second key information.

13. The method of claim 3 further comprising
providing the parameters from an encryption renewal system that generates the
one or more entitlement control messages.

14. The method of claim 13 wherein the step of generating an encryption
record is by an offline encryption system.

15. The method of claim 4 further comprising
providing first and second service tiers in the first cable system to further limit
access to the pre-encrypted content.

16. The method of claim 15 further comprising
generating a first entitlement control message allowing the first subscriber
terminal to access the pre-encrypted content only in the first service tier, and
generating a second entitlement message allowing a second subscriber
terminal to access the pre-encrypted only in the second service tier.

17. A system for delivering first and second content to a subscriber
terminal on-demand through a communication network, the system comprising:
means for pre-encrypting the first and second content offline to form first and
second pre-encrypted content, and for generating a first encryption record associated with the
first pre-encrypted content, and a second encryption record for the second pre-encrypted
content;
means for generating a first and second entitlement messages that allow
decryption of the first and second pre-encrypted contents, respectively;
a conditional access system for providing information included in the first and
second entitlement messages by the means for generating; and
means for receiving the pre-encrypted content from the means for pre-
encrypting, forwarding the first and second encryption records to the means for generating
which generates the first and second entitlement messages for forwarding to the subscriber
terminal.

18. The system of claim 17 further comprising means for generating a
third entitlement message.

1 19. The system of claim 18 wherein the third entitlement message is for
2 permitting access to the first pre-encrypted content after expiration of the first entitlement
3 message.

1 20. A method using an encryption renewal system, the method permitting
2 first and second communication systems to control subscriber access to pre-encrypted content
3 that was previously encrypted offline, the method comprising:

4 receiving, by the encryption renewal system, a first cryptographic information
5 from the first communication system;

6 receiving an encryption record containing parameters employed during
7 encryption to form the pre-encrypted content; and

8 generating for the first communication system, a first control message for
9 providing access to the pre-encrypted content based on the first cryptographic information
10 and the first encryption record.

11 21. The method of claim 20 further comprising

12 receiving, by the encryption renewal system, a second cryptographic
13 information from the second communication system;

14 receiving the encryption record containing parameters employed during
15 encryption to form the pre-encrypted content; and

16 generating for the second communication system, a second control message
17 for providing access to the pre-encrypted content based on the second cryptographic
18 information and the encryption record.

1 22. The method of claim 20 further comprising generating a third control
2 message upon expiration of the first control message, to provide access to the pre-encrypted
3 content.

1 23. The method of claim 20 further comprising

2 retrieving entitlement control messages associated with the pre-encrypted
3 content; and

4 specifying a tier to which a subscriber is authorized when the pre-encrypted
5 program is purchased.

24. A system for delivering content to a subscriber terminal on-demand through a point-to-point communication network, the system comprising:

- an offline encryption system having software containing one or more instructions for pre-encrypting the content to form pre-encrypted content before a content request is received from the subscriber terminal;
- a video on-demand system including software having one or more instructions for receiving the pre-encrypted content from the offline encryption system, and forwarding the pre-encrypted content to the subscriber terminal; and
- an encryption renewal system interfacing with the offline encryption system to provide encryption parameters for encrypting the content, and interfacing with the video on-demand system to generate entitlement control messages allowing the pre-encrypted content to be decryptable for a designated duration, wherein the entitlement control messages are generated by using a periodical key.

25. The system of claim 24 further comprising a conditional access system having software interfacing with a billing system to coordinate subscriber access to the pre-encrypted content based on a subscriber purchase.

26. The system of claim 24 further comprising an interactive system including software having instructions for providing two-way subscriber interaction between the subscriber system and the video on-demand system.

27. The system of claim 24 further comprising one or more service tiers to secure the pre-encrypted content.

28. The system of claim 24 wherein the encryption renewal system generates first and second versions of an entitlement control message, for accessing the pre-encrypted content in a first and a second tier, respectively.

29. The system of claim 24 further comprising retrieving entitlement control messages associated with the pre-encrypted content, and specifying the tier for which a subscriber is authorized when the pre-encrypted program is purchased.

10 storing the content by the second communication system, wherein the content
11 is distributable by the first communication system to a first subscriber within the first
12 communication system upon request from the first subscriber, and the content is distributable
13 by the second communication system to a second subscriber within the second
14 communication system upon request.

1 39. The method of claim 38 wherein the pre-encrypted content is
2 encrypted prior to transmitting the content to the first and second communication system.

1 40. The method of claim 20 further comprising assigning subscriber tiers,
2 so that only a designated number of subscribers share each subscriber tier within a fiber node.

0909184-070304
T0E070-48T86860